for pressing against the lower surface of the cable and the braking face has a groove extending along the extension direction of the cable.

[0022] Preferably, in any of the embodiments of the present invention, the obstacle sensor comprises a tactile sensor or an optical sensor.

[0023] Preferably, in any of the embodiments of the present invention, the tactile sensor comprises a telescopic probe directing forward with respect to the front wheel and the probe can retract when contacting an obstacle in front of it.

[0024] Preferably, in any of the embodiments of the present invention, the cam is provided on its circumferential rim with a plurality of mini-wheels whose rotation axes are parallel to a rotation axis of the cam, and each mini-wheel is radially recessed on its circumferential rim.

[0025] Preferably, in any of the embodiments of the present invention, the multiple divided cables are four divided cables, or three divided cables, or two divided cables.

[0026] Therefore, the electric vehicle for routing inspection of power transmission lines according to the embodiment(s) of the present invention enables safer and more effective routing inspection and maintenance for power transmission lines.

DESCRIPTION OF THE DRAWINGS

[0027] The description will be set forth hereinafter with reference to the accompanying drawings, provided only by way of non-limiting example, in which:

[0028] FIG. **1** is a structural diagram of a running mechanism of an electric vehicle for routing inspection of power transmission lines according to an embodiment of the present invention, wherein a normal running state is shown;

[0029] FIG. **2** is a structural diagram of a running mechanism of an electric vehicle for routing inspection of power transmission lines according to an embodiment of the present invention, wherein an obstacle crossing state is shown;

[0030] FIG. **3** is a structural diagram of an electric vehicle for routing inspection of power transmission lines, after it is mounted to the cable, according to an embodiment of the present invention;

[0031] FIG. **4** is a structural diagram of an electric vehicle for routing inspection of power transmission lines, before it is mounted to the cable, according to an embodiment of the present invention; and

[0032] FIG. **5** is a side view of an electric vehicle for routing inspection of power transmission lines according to an embodiment of the present invention.

DESCRIPTION OF EXEMPLARY EMBODIMENTS

[0033] Hereinafter, to make the objective(s), technical solution(s) and advantages of the present invention clearer and better understood, the present invention will be further described in detail, in connection with specific embodiments and with reference to the accompanying drawings.

[0034] According to an embodiment of the invention, an electric vehicle for routing inspection of power transmission lines is provided, enabling safer and more effective routing inspection and maintenance for power transmission lines.

[0035] According to an embodiment of the invention, an electric vehicle for routing inspection of power transmission lines is provided, used for routing inspection along multiple divided cables of high-voltage power transmission lines, comprising:

[0036] a vehicle body (or referred as "body" for brevity);

[0037] a running mechanism mounted to the body, comprising a front wheel and a rear wheel connected by a cross beam and rolling on the cable, the front and rear wheels each having an annular groove on its circumferential rim for receiving the cable therein; an obstacle sensor directing forward with respect to the front wheel; and a cam rotatably mounted to the cross beam, the cam rotating to roll onto the cable after an obstacle is detected on the cable within an effective range in front of the front wheel by the obstacle sensor, to support a front portion of the cross beam upwards such that the front wheel is raised to a position above the cable, and the cam continuing rolling on the cable after the front wheel passes the obstacle such that the front portion of the cross beam falls back downwards and the front wheel then falls back onto the cable, wherein two of the running mechanisms are running on two parallel cables, respectively;

[0038] a hanging seat rotatably hanging to the body, below the running mechanisms; and

[0039] a control device at least partially disposed in the hanging seat and comprising a braking device, the braking device having a braking block able to detachably press against a lower surface of the cable and/or the front wheel and/or the rear wheel.

[0040] With such solution, the electric vehicle for routing inspection of power transmission lines (referred as "electric vehicle" hereinafter for brevity) is enabled to run along the cable(s) by the front and rear wheels rolling on the cable(s). The cable is restricted within the annular groove on the circumferential rims of the front and rear wheels, to avoid or reduce the risk of separating and falling of the front and rear wheels from the cable. The hanging seat is rotatably hanging to the body and positioned below the running mechanisms such that the hanging seat can maintain a state of hanging down vertically, and the operator(s) in the hanging seat can use the control device to control the actions of the electric vehicle, such as running forward, braking, etc.

[0041] It should be noted that the running mechanism has a function of crossing obstacles by the obstacle sensor and the cam provided therein. Specifically, when the electric vehicle is normally running on the cable, the cam maintains stationary and above the cable, without any contact with the cable; however, when an obstacle is detected on the cable within an effective range in front of the front wheel by the obstacle sensor, the cam can rotate accordingly. In one embodiment, the cam may start rotating immediately; and in another embodiment, the cam may start rotating after a further period of time, for example, the cam may start rotating only when a distance of the obstacle in front (to the obstacle sensor or to the front wheel) is further detected to be less than a predetermined threshold. Then, with the shape changing in the cam circumferential rim (or curving contour) during rotation of the cam, the cam comes into contact, by its circumferential rim, with the upper surface of the cable and thus begins to roll on the cable. As the cam having a special circumferential rim curve continues rolling on the cable, the distance between a cam-cable contact point of the cam in contact with the cable and the cam rotation shaft (which may be driven by the respective motor to rotate, thus rotating the cam) becomes larger, thus the cam, rotatably